

AMENDMENTS TO THE SPECIFICATION

Please replace the present Abstract of the Disclosure with the following amended abstract:

A transmission filter apparatus for spatially dependent intensity filtering of an incident light distribution, and illumination systems containing the same. The light transmission filter apparatus contains at least one retardation device (23) that can be operated in transmission for the purpose of producing a spatially dependent retarding effect on the light of the incident light distribution, it being possible to drive the retardation device (23) in order to produce a temporally variable, spatially dependent retarding effect, and also contains at least one polarization filter arrangement (24) arranged in the light path downstream of the retardation device. An exposure method for a substrate can advantageously be carried out with the aid of an illumination system having such a transmission filter apparatus.

Please replace the paragraph [0042] of the Specification as filed with the following amended paragraph:

[0042] Apart from proceeding from the claims, the present and further features also proceed from the description and the drawings, it being possible in each case to implement the individual features on their own or separately in the form of subcombinations in embodiments of the invention and in other fields, and to represent advantageous designs that are capable of protection per se.

Figure 1 shows a schematic side view of an embodiment of a microlithography projection exposure machine having an illumination system with a transmission filter apparatus, figure 2 shows a schematic side view of the transmission filter apparatus of figure 1 with a cell arrangement and a polarization filter arrangement,

figure 3 shows a schematic drawing for explaining the functional principle of the transmission filter apparatus of figure 2 with the aid of a cell of the cell arrangement, and of an assigned polarization filter,

figure 4 shows a plan view of a first side of the cell arrangement of figure 2 with a plurality of electrodes,

figure 5 shows a side view of the cell arrangement of figure 1 with electric field lines,

figure 6 shows a plan view of one embodiment of an electrode as grid electrode,

figure 7 shows a schematic perspective view of another embodiment of a transmission filter apparatus in the case of which purposely stressed birefringent material is used to produce a retarding effect, varying in a spatially dependent fashion, of a retardation element,

figure 8 shows a schematic side view of essential elements of such a transmission filter apparatus for the purpose of explaining the spatially dependent intensity filtering,

figure 9 shows a schematic, axial plan view of a retardation element that is of round cross section and is purposely stressed mechanically with the aid of actuators of a stressing device that act on the circumference, and

figure 10 shows various spatial transmission distributions that can be attained by the transmission filter arrangement, and.

figure 11 shows a side view of the cell arrangement of figure 1 with a plurality of first electrodes and a plurality of second electrodes.

Please replace the paragraph [0057] of the Specification as filed with the following amended paragraph:

[0057] The apparatus shown in figure 2 has for the purpose of producing a spatially dependent intensity distribution a plurality of cells consisting respectively of a second electrode ~~plurality of electrodes~~ 61 and a subregion of the second~~first~~ electrode 62 that operate in accordance with the functional principle explained here and can be controlled independently of one another by the control device ~~16060~~, since the field lines of neighboring cells do not overlap. In order to illustrate this fact, figure 5 shows a side view of a detail of the cell arrangement ~~62-23~~ of figure 2, in which the electric field lines occurring during operation of the cell arrangement 62 are shown. The detail shows a first and a second electrode 61a, 61b of the plurality of electrodes 61, a section of the second electrode 62 and a part of the nonlinear optical crystal 63. The plurality of the first electrodes are mounted on the first plate face 65 at a spacing $p = 2$ mm from one another that is large by comparison with the plate thickness $d = 1$ mm. The condition $p > 2 \cdot d$, $p > 4 \cdot d$ or $p > 5 \cdot d$ should preferably be observed in order to avoid "crosstalk" between neighboring cells. In order to illustrate the independence of the electric fields produced by the first and the second electrode 61a, 61b of the plurality of electrodes, the field lines 71 of the fields between the ~~first~~ electrodes 61a, 61b and the second electrode 62 are drawn in. It is clearly

to be seen that the field lines of the first and the second electrode do not overlap, since the spacing p of the electrodes is selected to be sufficiently large by comparison with the thickness d of the plate. In an alternative embodiment, a second plurality of electrodes 62a, 62b can replace the second electrode 62, as depicted in figure 11. As with the embodiment depicted in figure 5, it is clearly to be seen in the embodiment of figure 11 that the field lines between electrodes 61a and 62a do not overlap with the fields lines of electrodes 61b and 62b.